

This Kwigillingok Airport Layout Plan Narrative Report is provided along with the Airport Layout Plan in accordance with Federal Aviation Administration (FAA) Airport Design Advisory Circular 150/5300-13, Appendix 7. The rationale for the Kwigillingok Airport improvements will be outlined in this report.

This Airport Layout Plan (ALP) supersedes the airport layout plan approved by the FAA in 1985.

There are no roads to Kwigillingok and river access is limited to summer months. Aircraft travel is the sole year round method to access Kwigillingok.

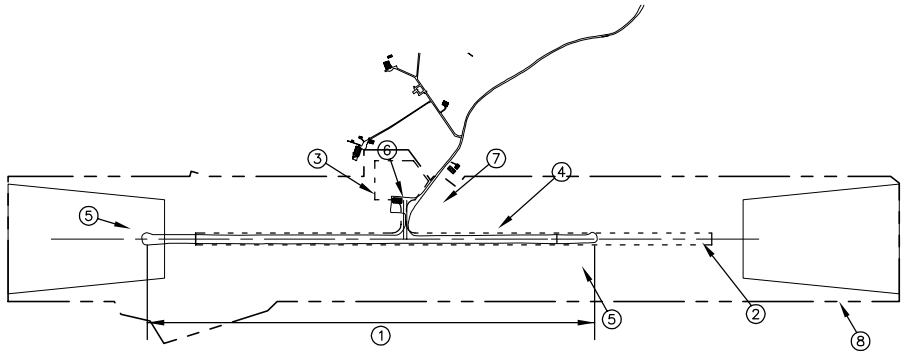
The Alaska Aviation System Plan (AASP) has designated this airport as a Community Class which is defined as the primary access to a small rural community of at least 25 permanent year-round residents without other reliable year-round access.

The airport is currently served primarily by single and twin engine wheeled aircraft. Single engine aircraft with an Airport Reference Code (ARC) A-1 consist of Cessna 207's, 172 Skyhawk, and C-208 Grand Caravan as well as Piper Saratoga's. Small twin engine aircraft within ARC A-11, and B-1 such as the Dehavilland Twin Otter and the Piper Navajo also serve Kwigillingok. The Shorts Skyvan (B-11) occasionally serves Kwigillingok as well. As the existing fleet ages it will become increasingly more difficult to replace the small single engine aircraft because they are no longer being manufactured. The Bethel aircraft fleet will tend to be more reliant on the small twin engine aircraft, ARC B-1 and B-11 that are available such as the Piper Navajo, Navajo Chieftain, Beech 1900, and Beech Super King Air. There is no local wind data available for the Kwigillingok Airport. The wind data for Kipnuk, Alaska located 26 miles to the west is assumed to be equivalent and will be used. The Yukon-Kuskokwim delta area has very little topographical relief.

The development of the Kwagilingok Airport will be accomplished in staged increments of Near-Term (0-5 Years), Mid-Term (6-10 Years) and Long-Term (11-20 Years). Typically, construction requiring new embankment will be initiated during one stage and then completed for use during the following stage. The staged construction is necessary to allow the embankment to stabilize by consolidation over a period of five years.

Near-Term development will bring the existing runway into compliance with standards for an A-1 airport, install medium intensity lighting, and construction of silt embankments for completion during the following stage. The embankments to be constructed are a 1,090 feet extension to the south of the existing Runway 15/33, and an embankment for a new apron to the east. The existing slough along the west side of Runway 15/33 will be rechanneled in order to move the flow further away from the safety area embankment, and the embankment armored with concrete block mats where slough flow threatens erosion.

1. Widen the existing 2,900' Runway 15/33 safety area from 100' to 150' and gravel surface 60' by 2,310' runway.
2. Construct a 150'x 1,090' embankment for a runway extension to the south of the existing Runway 15/33.
3. Construct a 75,000 sq. ft. embankment for the future apron.
4. Construct medium intensity lighting system for Runway 15/33, layout will accommodate future mid term airport expansion.
5. Stream rechannelization and armor embankment.
6. New rotating beacon constructed on the east side of the equipment storage building.
7. Construct embankment for a new lighted wind cone with a new segmented circle.
8. Property acquisition required for airport expansion and runway protection zones.



Mid-term development will complete construction on the embankment placed in the near-term stage. This includes grading the expanded safety area and new apron and then importing surface material for runways, taxiways, and apron. The work shall include extending Runway 15/33 to 75'x 3,300 feet within a 150'x 3,900' safety area and installing medium intensity lighting along the runway extension, taxiway, and new aircraft parking area. Construct a new equipment storage building at the new 75,000 square foot apron.

1. Lengthen Runway 15/33 from 2,310' to 3,300' and safety area from 2,900' to 3,900'. Widen runway surface to 75'.
2. Grade and surface 75,000 square foot apron and 250' x 35' taxiway with 79' wide taxiway safety area.
3. Construct medium intensity lighting system for the 1,090' extension of Runway 15/33, new segmented circle & lighted windcone.
4. Construct new Equipment Storage Building at new 75,000 square foot apron. Purchase new snow removal equipment.

Development proposed through the Mid-term is expected to be adequate for the Long-term. Wind data should be gathered in the Mid-term to determine whether a crosswind runway is needed for Long-Term development.

The major needs for this airport are to upgrade existing facilities to current standards, provide adequate crosswind coverage and to upgrade the facilities to meet the needs of the future aircraft fleet. The major obstacle to the improvements is the absence of competent embankment material.

The existing runway 15/33 is a substandard A-I facility which will be upgraded to current standards for A-I during the near-term and B-II during the mid-term.

The airport should also meet Approach Category B standards, landings speeds of 91 to 121 knots (FAA AC 150/5300-150-13).

The DHC-6 Twin Otter is the most demanding (ARC A-II) regular use aircraft (250+ operations annually) operating to and from the Kwigillingok Airport. According to the air traffic forecast, Kwigillingok Airport should be designed to accommodate this aircraft.

It should be noted however, that A-II design standards might be inappropriate for the Kwillingkok airport. Many of the community airports in the Yukon-Kuskokwim region are being constructed to B-II standards. Constructing Kwillingkok airport to meet A-II standards (which would not meet dimensional standards for a community class airport) could increase the cost of aviation services to Kwillingkok residents.

Commercial aircraft operators would have an economic incentive to build fleets of larger B-11 aircraft and keep them full by linking service to villages with B-11 airports. If operators have to keep smaller, less economically efficient, aircraft in their fleets just to serve Kwigillingok, the costs will be passed on to the residents in the form higher passenger fares and cargo rates.

The recommended dimensional standards for runway length at community class airports exceed the runway length required by aircraft categorized with an Approach Category of 'A'. Based on the anticipated future designation of the Kwigillingok Airport as a community class airport, runway length should be designed to meet the recommended runway length standards.

Runway 15/33 provides 83.75% coverage for 10.5 knot crosswinds and 90.31% coverage for 13 knot crosswinds using Kipnuk wind data. Wind data should be collected from nearby communities to determine the need for long-term future construction of a crosswind runway.

**Runway 15/33**  
Kwigillingok Airport has one existing runway. Runway 15/33 was originally constructed in 1972 and gravel surfaced in 1982. The existing runway is 50 feet wide and 2510 feet long and has no light system. The existing safety area is 100 feet wide and 2900 feet long. The runway has a thin gravel cap over silty material. The existing profile is undulating.

Near-term construction will upgrade runway 15/33 to 60 feet wide by 2310 feet long, have a safety area 150 feet wide by 2900 feet long and smooth out the profile. This will bring the runway into conformance with A-I standards. The widening will be via shallow fills which will be constructed from native materials and be stable in the near-term. The near-term runway will be constructed to meet the needs of the aircraft currently served by the runway and still remain on the existing embankment. The 2310 length interpolates to providing adequate length for between 75% and 95% of the small aircraft with less than 10 passenger seats. The 2310 foot runway will provide adequate service to the aircraft that currently serve Kwigillingik. The 60 feet by 2310 foot runway will have a medium intensity lighting system.

Midterm development is the same as ultimate development and will lengthen the runway to 3300 feet within a 150 feet by 3900 feet safety area. The 3300 feet meets the requirement for 100% of small aircraft having less than 10 passenger seats and will allow for upgrading to small twin engine aircraft use.

The existing taxiway is located at the mid-point of the existing runway and is an exit taxiway to the existing substandard apron. The existing taxiway is 30 feet wide and 130 feet long and meets A-I requirements. Mid-term development will complete construction of a new taxiway to the new apron. The taxiway will be 250 feet from the runway centerline to the new apron.

The present apron is 90 feet wide and 200 feet long (18,000 sq. ft.) with a thin gravel surface. The front edge of the existing apron is approximately 175 feet from the runway centerline and meets A-I requirements.

In the near term embankment will be placed in a new location at the southeast corner of the existing runway for a new apron. Mid-term development will move the aircraft parking area to the new 75,000 square foot apron. This parking area will be at a setback of 250 feet from the runway centerline. The aircraft parking area will be outside the 400 feet runway obstacle free area of Runway 15/33 as required for Ultimate development. The 75,000 square foot aircraft parking area will meet the guidelines of the AASP for community class airports. There will be four aircraft tie-downs provided.

During near-term development, embankment will be placed to provide access to the new apron from the existing road. During Mid-term development this access road will be graded and surfaced.

The existing 24'x46' snow removal equipment storage building is located in the northeast corner of the existing apron at 235 feet from the runway centerline. A new SRE building will be constructed at the new apron in the mid term.

Kwigillingok Airport Design Standards					
Runway 15/33					
Item	Existing	Standard A-I*	Near-Term A-I	Standard B-II	Mid-Term B-II
Runway Length	2510'		2310'		3300'
Runway Width	50	60	60	75	75
Runway Shoulder Width	10	10	10	10	10
Runway Safety Area Width	100	120	150	150	150
Runway Safety Area Length beyond runway ends	195	240	RW15-300 RW33-240	300	300
Runway Object Free Area Width	250	250	250	500	500
Runway Object Free Area Length beyond runway ends	240	240	240	300	300
Taxiway Width	30	25	30	35	35
Taxiway Shoulder Width	5	10	5	10	10
Taxiway Safety Area Width	40	49	40	79	79
Taxiway Object Free Area Width	90	89	90	131	131
Aircraft Parking Area Setback	175	125	175	250	250
Runway Protection Zone Length	1000	1000	1000	1000	1000
Runway Protection Zone Inner Width	250	250	250	500	500
Runway Protection Zone Outer Width	450	450	450	700	700
Building Restriction Line	235	N/A	235	N/A	400
Approach Slope Angle	20:1	20:1	20:1	34:1	34:1

### F. Property Status

The airport is situated within a 109 acre tract of land, which was leased to The State of Alaska DOT&PF until 1999 by USF&WS. The lease, which has expired, was administered by Kwik, Inc., the Village Corporation to which the land was conveyed under the Alaska Native Claims Settlement Act (ANCSA). Proposed property acquisition would include transferring approximately 116 acres of land in fee, and approximately 16 acres of aviation hazard easement from Kwik, Inc. and Calista to the sponsor. Native allotments will be transferred to Kwik, Inc. prior to transference to the airport sponsor. The total property acquisition would be approximately 130 acres.

Community involvement is being documented through a sponsorship evaluation report and an airport master plan.

The runway safety area is deficient in length and width for a B-11 aircraft. The runway is deficient in width also. The runway width will be increased to 60 feet, and the runway safety area deficiencies will be rectified in the near term. The aircraft parking separation, the taxiway width, and the taxiway safety area width will be rectified in the mid term. Also the runway will be widened again to 75 feet in the mid term.

Runway 15/33 has an obstruction protruding into the FAR Part 77 imaginary surface. The existing snow removal equipment storage building roof projects 18 feet into the primary surface.

This encroachment will be eliminated during Mid-term development when the existing building is removed.